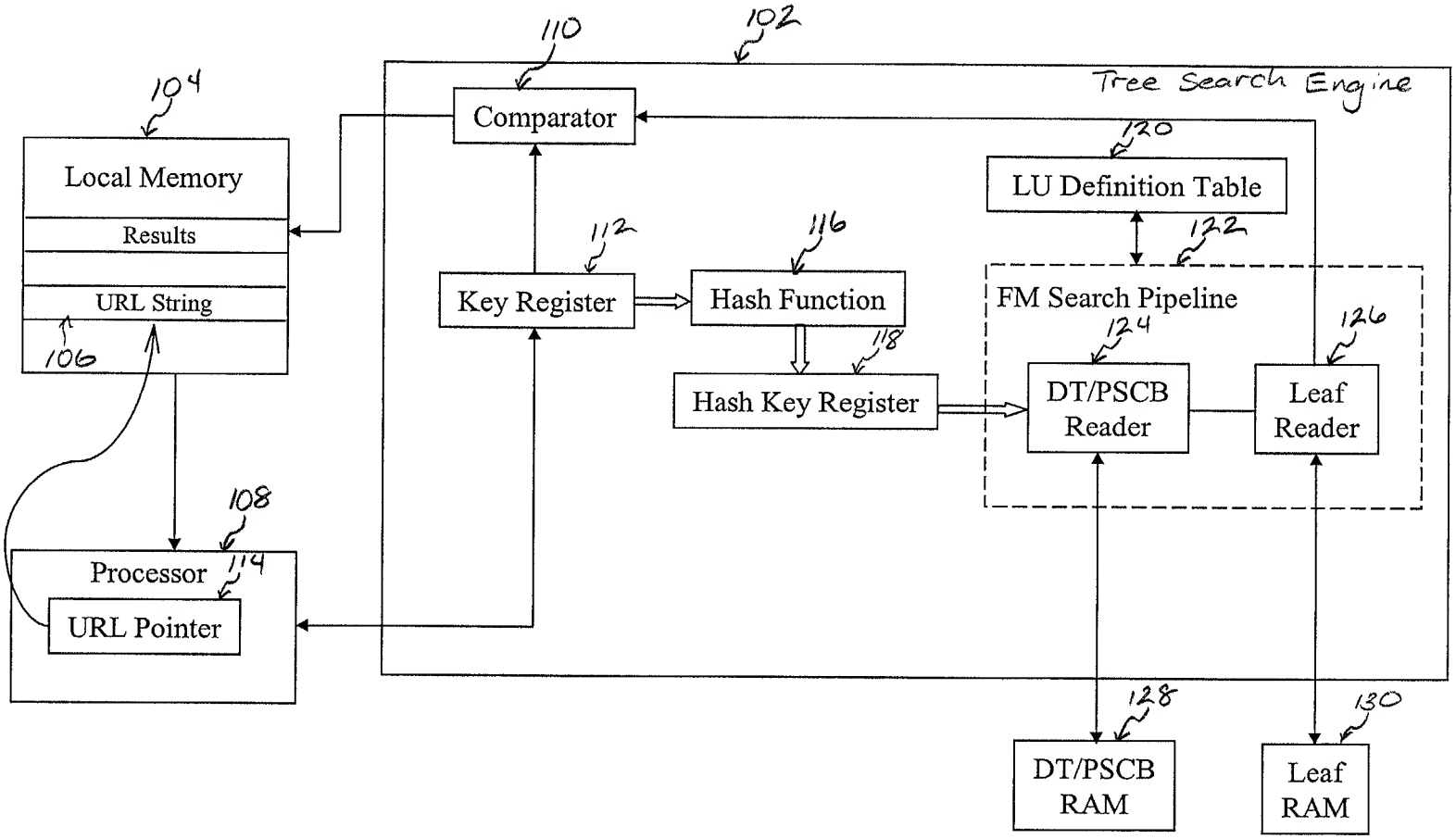
100
110
102
Tree Search Engine
104
Comparator
Local Memory
Results
URL String
106
120
LU Definition Table
112
116
122
Key Register
Hash Function
FM Search Pipeline
124
126
118
Hash Key Register
DT/PSCB Reader
Leaf Reader
108
Processor
114
URL Pointer
128
130
DT/PSCB RAM
Leaf RAM

FIG. 1

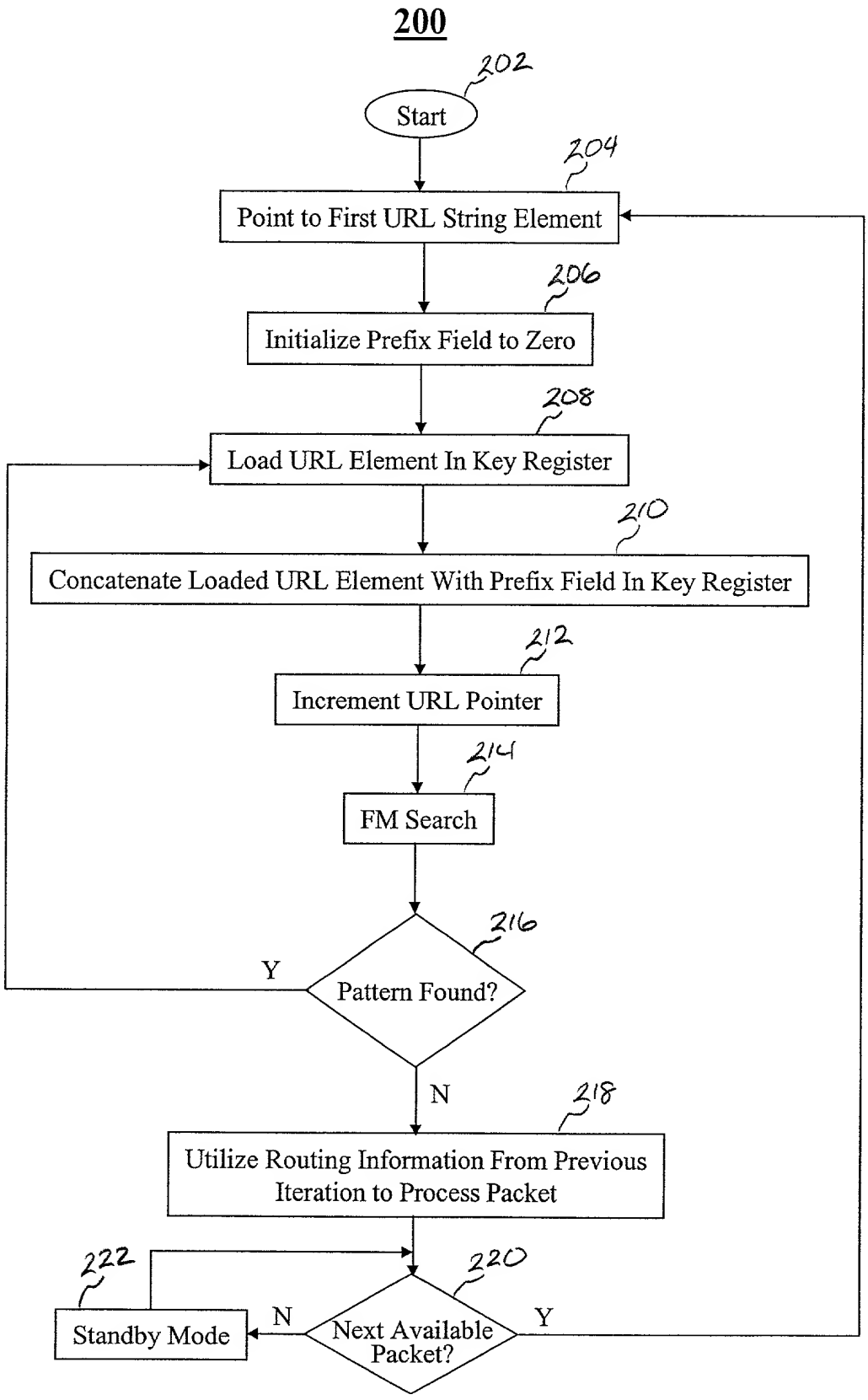
200
202
Start
204
Point to First URL String Element
206
Initialize Prefix Field to Zero
208
Load URL Element In Key Register
210
Concatenate Loaded URL Element With Prefix Field In Key Register
212
Increment URL Pointer
214
FM Search
216
Pattern Found?
Y
N
218
Utilize Routing Information From Previous Iteration to Process Packet
220
Next Available Packet?
Y
N
222
Standby Mode

FIG. 2

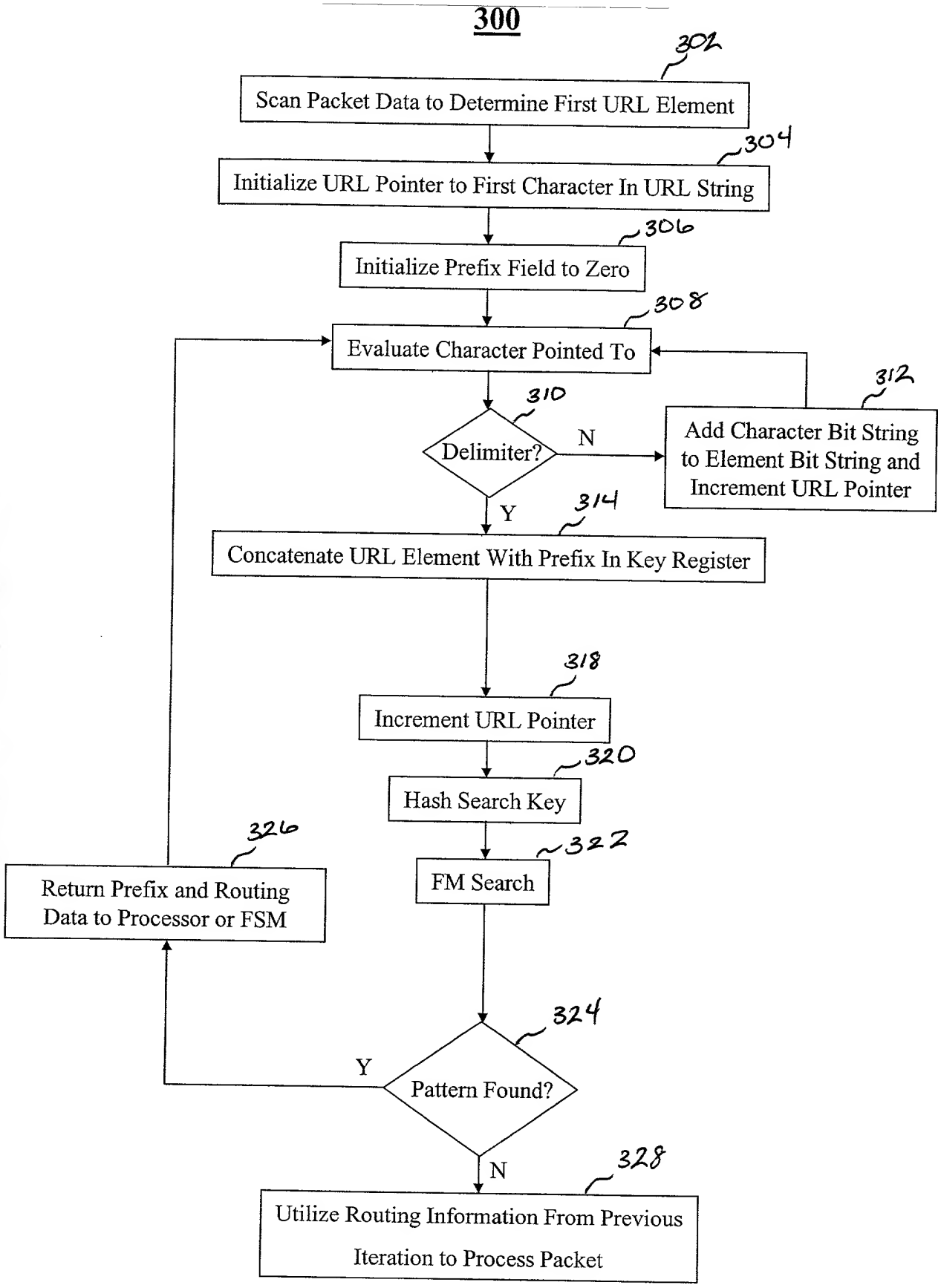
300
302
Scan Packet Data to Determine First URL Element
304
Initialize URL Pointer to First Character In URL String
306
Initialize Prefix Field to Zero
308
Evaluate Character Pointed To
310
Delimiter?
N
312
Add Character Bit String to Element Bit String and Increment URL Pointer
Y
314
Concatenate URL Element With Prefix In Key Register
318
Increment URL Pointer
320
Hash Search Key
322
FM Search
324
Pattern Found?
Y
326
Return Prefix and Routing Data to Processor or FSM
N
328
Utilize Routing Information From Previous Iteration to Process Packet

FIG. 3

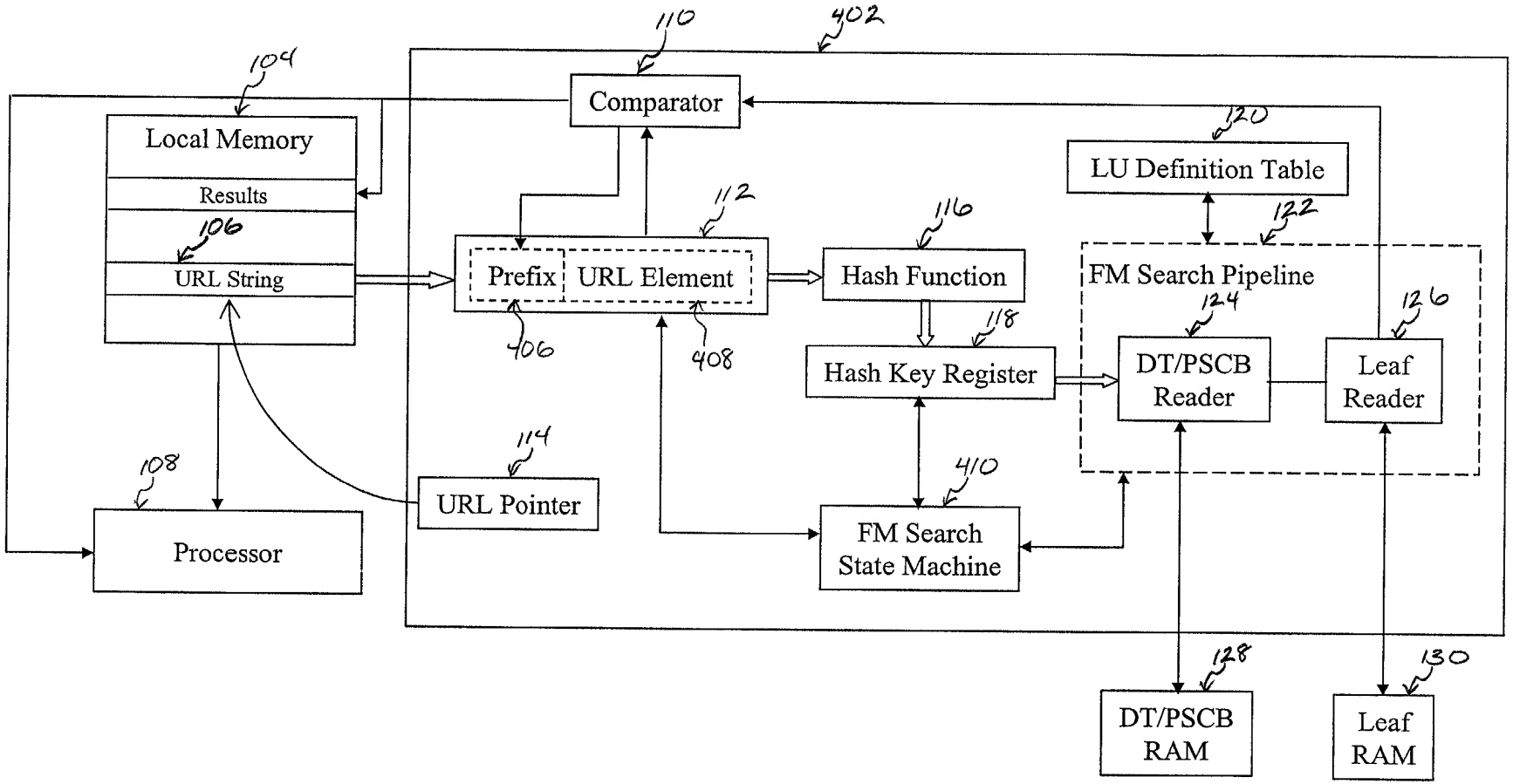
400
110
402
104
Comparator
Local Memory
Results
106
URL String
120
LU Definition Table
112
116
122
Prefix
URL Element
Hash Function
FM Search Pipeline
406
408
118
124
126
Hash Key Register
DT/PSCB
Reader
Leaf
Reader
114
108
410
URL Pointer
FM Search
State Machine
Processor
128
130
DT/PSCB
RAM
Leaf
RAM

FIG. 4